AES-HM76Z1FL

Fanless and Ultra Slim Intel HM76 Embedded System

User Manual

Acrosser Technology Co., Ltd.
www.acrosser.com

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Purpose

This document is intended to provide the information about the features and use of the product.

Audience

The intended audiences are technical personnel, not for general audiences.

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1. System Introduction

The AES-HM76Z1FL embedded system uses the latest technology in scalable Intel Celeron and 3rd generation Core i7/i3 processors with a HM76 chipset. It features graphics via VGA and HDMI, DDR3 SO-DIMM support, complete I/O such as 4 x COM ports, 3 x USB3.0 ports, 8 x GPI and 8 x GPO, and storage via SATA III and Compact Flash. The AES-HM76Z1FL also supports communication by 2 x RJ-45 gigabit Ethernet ports, 1 x SIM slot, and 1 x Mini PCIe expansion socket for a 3.5G or WiFi module.

The heat sink from the fanless design provides AES-HM76Z1FL with great thermal performance, as well as increases the efficiency of usable space. The fanless design provides dustproof protection, and saving the product itself from fan malfunction. AES-HM76Z1FL has thin client dimensions, with a height of only 20 millimeters, half the size thinner than most of the embedded appliances.

Different from most industrial products that focus on application in one specific industry, the AES-HM76Z1FL provides solutions for various applications through the complete I/O interfaces. Applications of the AES-HM76Z1FL include: embedded system solutions, control systems, digital signage, POS, Kiosk, ATM, banking, home automation, and so on. It can support industrial automation and commercial bases under multiple circumstances.

1.1. Specifications

System

CPU	• Intel Core i7 3517UE 1.7GHz • Intel Core i3 3217UE 1.6GHz • Intel Celeron Processor 1047UE 1.4GHz • Intel Celeron Processor 927UE 1.5GHz
Chipset	• Intel HM76
Memory	• 2 x 204-pin SO-DIMM Sockets • Support 1333/1600MHz DDR3 up to 16GB
BIOS	• AMI UEFI BIOS

Display

Graphic Controller	• Integrated within HM76
Video Interface	• 2 x HDMI (HDMI Type A connector) • 1 x VGA (Combo Connector)

Storage

CF	• 1 x Compact Flash Type II Socket
SATA	• 1 x SATA III Port with SATA Power Connector

Communication and I/O

Expansion	• 1 x Mini PCIe Socket (For 3.5G/WiFi)
SIM	• 1 x SIM Card Slot
Ethernet	• 2 x GbE (RJ45 with LED)
USB	• 3 x USB 3.0 (USB 3.0 Type A Connector) • 2 x USB 2.0 (1 for Mini PCIe / 1 for Combo Connector)
Serial Ports	• 2 x RS-232 (DB9 Connector) • 2 x RS-422/485 (DB15 Connector. Shared with GPIO)
GPIO	• 8 x GPI (DB15 Connector. Shared with RS-422/485) • 8 x GPO (DB15 Connector. Shared with RS-422/485)
Audio	• 1 x Line-Out (Combo Connector)

Power Requirement

Power Supply	• 12V/60W Power Adaptor (DC Jack)

Software

OS Support	• Windows 7 (x86, x64) • Windows 7 Embedded (x86) • Fedora 17 (x86, x64) • Ubuntu 12.10 (x86, x64)

Mechanical & Environment

Thermal	• Fanless (Heatsink)
Dimension	• 274.0 mm x 182.6 mm x 20 mm
Operating Temp	• 0 ~ 45°C (32 ~ 113°F)
Storage Temp	• -20 ~ 80°C (-4 ~ 176°F)
Relative Humidity	• 0 ~ 90%, Non-condensing
Safety	• CE, FCC Class A

1.3. Packing List

Check if the following items are included in the package.

- ☐ 1 x AES-HM76Z1FL System
- ☐ 1 x Quick Manual
- ☐ 1 x CD-Title with driver and utility
- ☐ 1 x Power Cord for USA, or Europe, or Japan, or UK
- ☐ 1 x DC12V Universal Power Adapter
- ☐ 1 x Combo Cable
- ☐ 2 x GPIO Cable
- ☐ 2 x 2.4~2.5GHz Antenna
- ☐ 1 x Pull-tab Opener

1.3.1. Options List

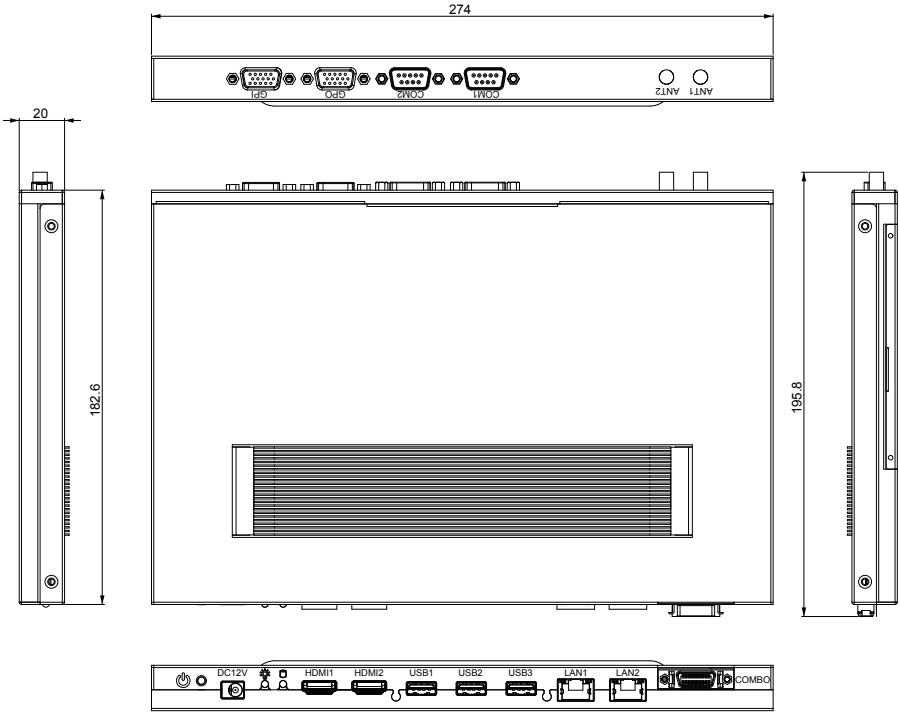
Description	Connection
3.5G Module	Mini PCIe
WiFi Module	Mini PCIe
Memory DDR3 2G+2G	
Memory DDR3 4G+4G	
Memory DDR3 8G+8G	

Note: There are 4 output connectors in one Combo cable, but only "USB", "VGA", and "AUDIO" features are available. Please connect them correctly. The remaining connector is reserved for other products.

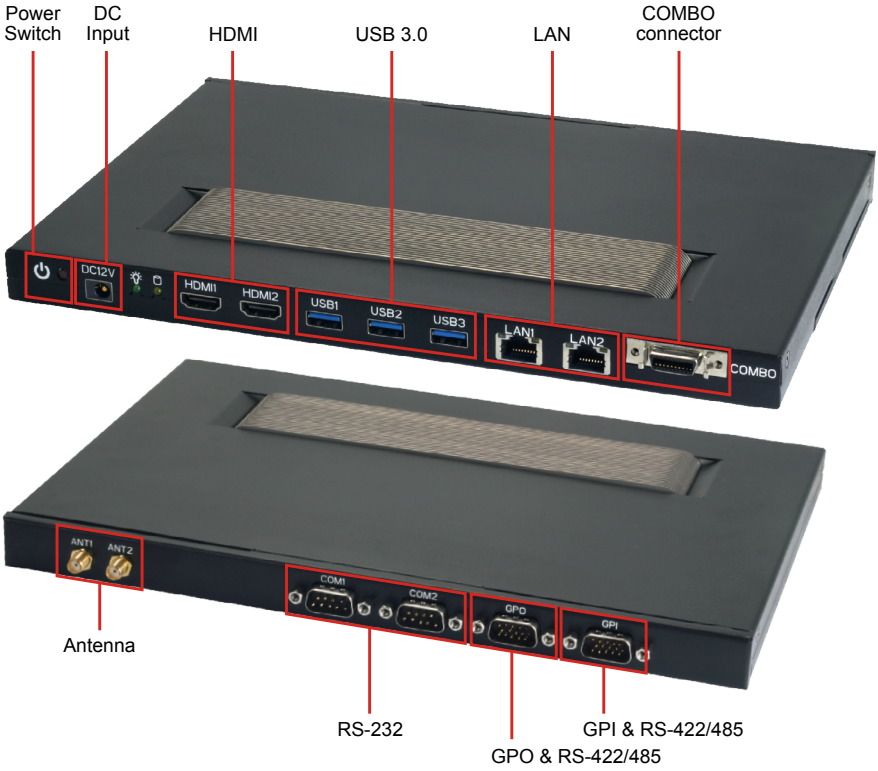
1.4. System Dissection

1.4.1. Dimensions

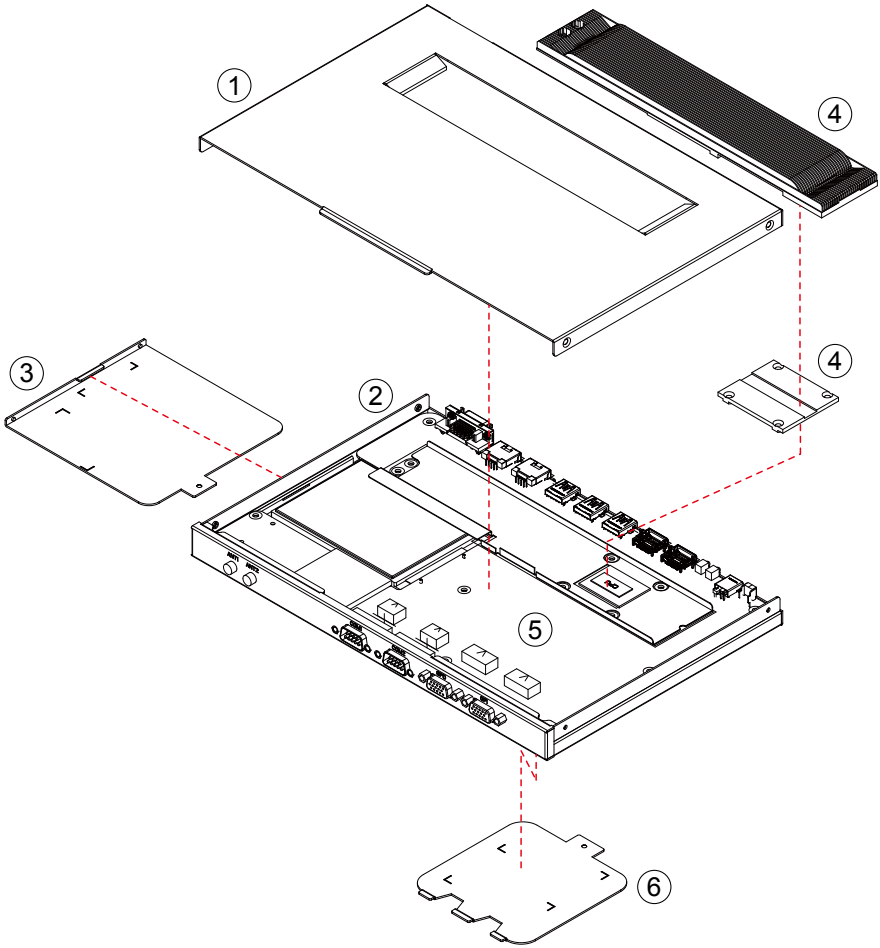
(Unit: mm)



1.4.2. I/O Panel


Power Switch
DC Input
HDMI
USB 3.0
LAN
COMBO connector
DC12V
HDMI1
HDMI2
USB1
USB2
USB3
LAN1
LAN2
COMBO
ANT1
ANT2
COM1
COM2
GPO
GPI
Antenna
RS-232
GPO & RS-422/485
GPI & RS-422/485

1.4.3. System Configuration



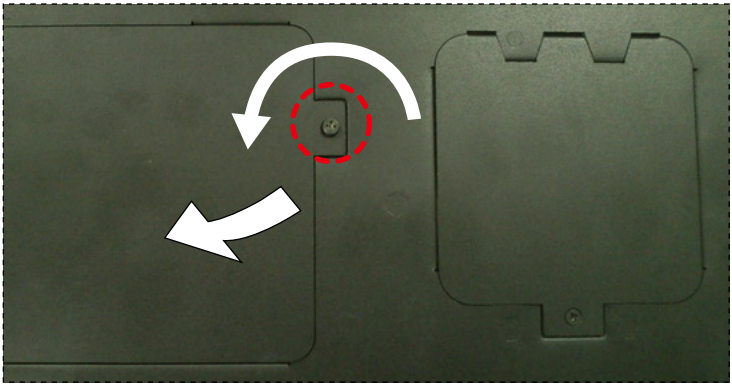
1. Top Cover
2. Bottom Base
3. HDD Cover
4. Heatsink Module Set
5. Mainboard
6. DDR3 Memory Cover

2. Assembly/Disassembly Procedures

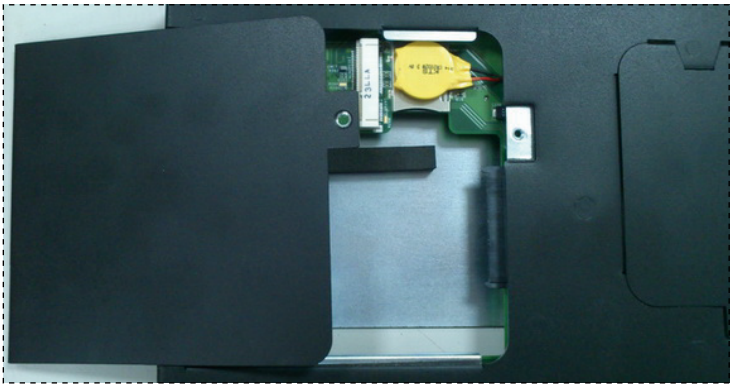
The following instructions will guide you to install your HDD or SSD, CF Card, Mini PCIe Card, SIM Card, and Memory Card.

2.1. 2.5” HDD, CF Card, SIM Card, and Mini PCIe Card Installation

Step 1: Loosen the screw located at the chassis bottom, and lift the HDD cover.



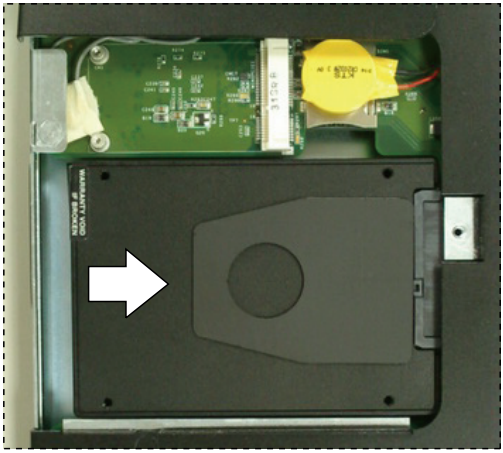
There is the room reserved for 2.5” HDD, CF Card, SIM Card, and Mini PCIe Card installation.



Step 2: We have a customized pull-tab opener which can easily pull out the disk.

After having inserted the disk to the SATA connector, peel off the protective sheet on the pull-tab opener and then stick it on your disk.

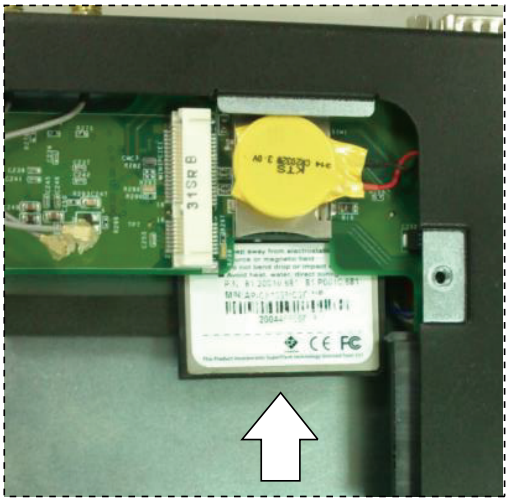
Step 3: Insert and push the disk into the SATA connector.



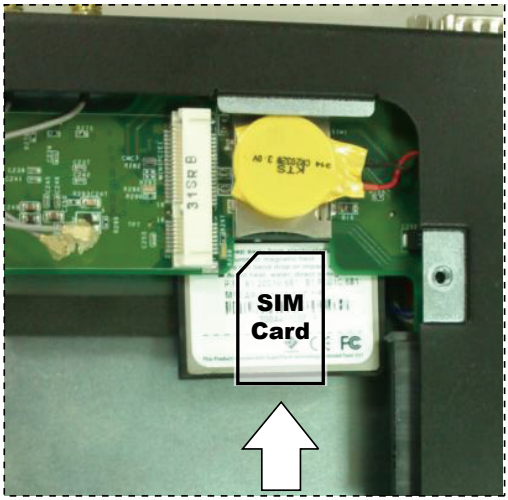
For SSD installation, we recommend using SSD of H9.5mm.

The pull-tab opener will be helpful to detach the disk from the SATA connector.

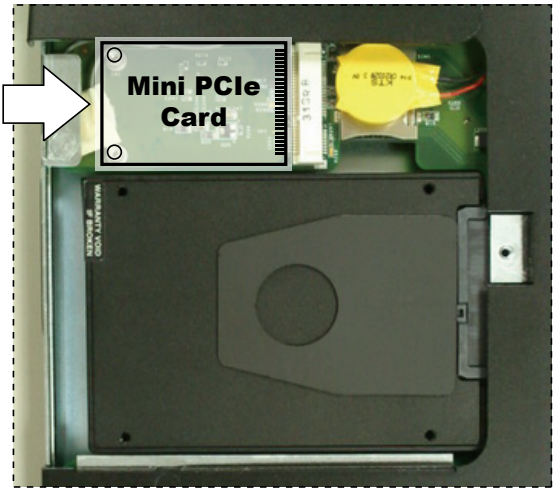
Step 4: Insert your CF card.



Step 5: Insert your SIM card according to your application.

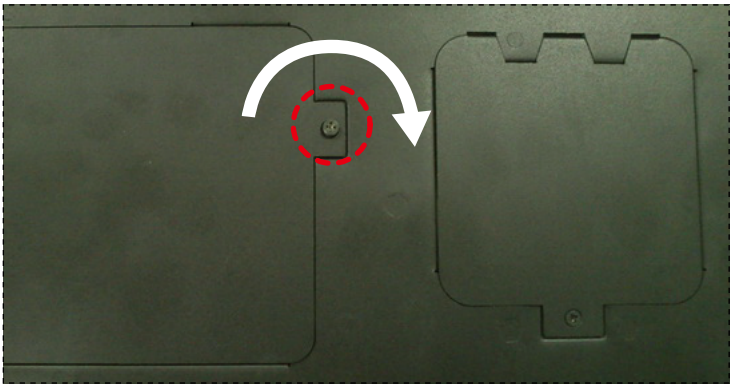


Step 6: Install your Mini PCIe card according to your application.



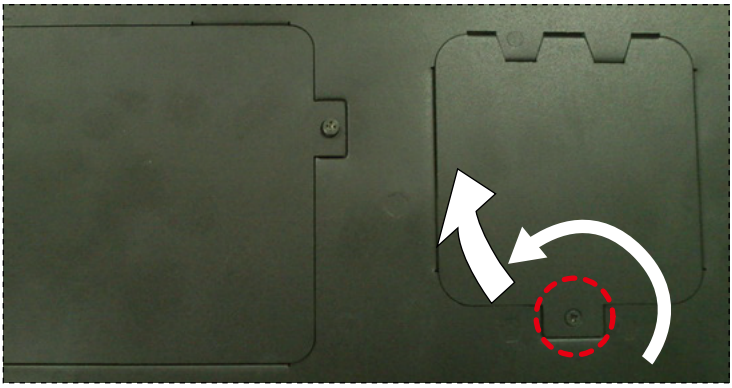
For 3.5G or WiFi installation, you will have to connect both ends of the antenna cables to the feed point on the Mini PCIe card first, and then connect the two antennas found in the package to the ANT1 & ANT2 port at the rear I/O panel.

Step 7: After finished installation, close the compartment cover and fasten the screw.

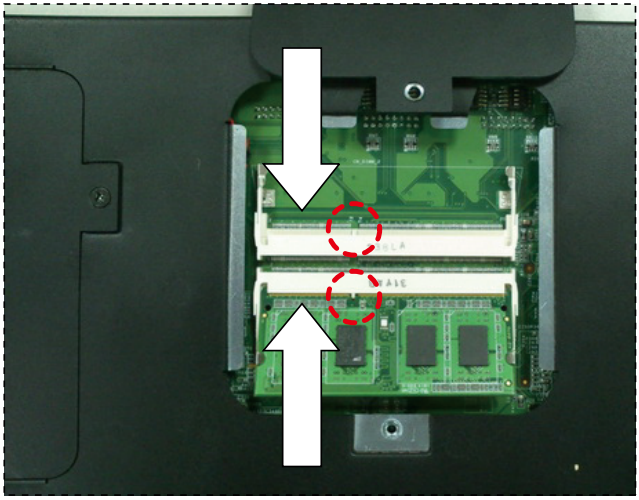


2.2. Memory Module Installation

Step 1: Loosen the screw located at the chassis bottom, and lift the memory compartment cover.

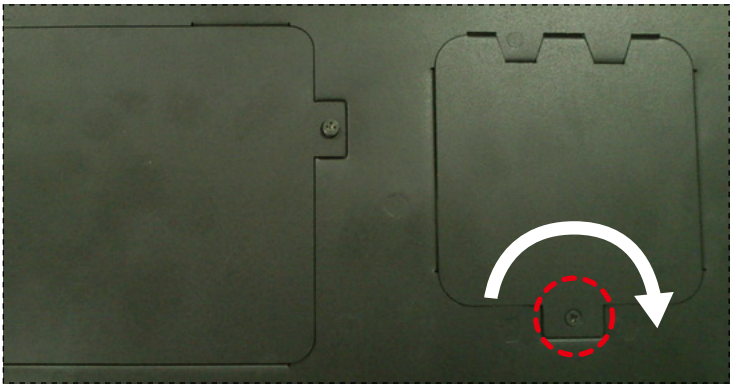


Step 2: Install the DDR3 memory into the socket.



Align the notch key on the module with the one on the socket when installing the memory module.

Step 3: After finished installation, close the compartment cover and fasten the screw.



3. BIOS Settings

This chapter describes the BIOS setup program. The BIOS settings can be viewed and changed for the module.

Note: *Only technical personnel should change the default BIOS settings.*

3.1. Enter the AMI Aptio Setup Utility

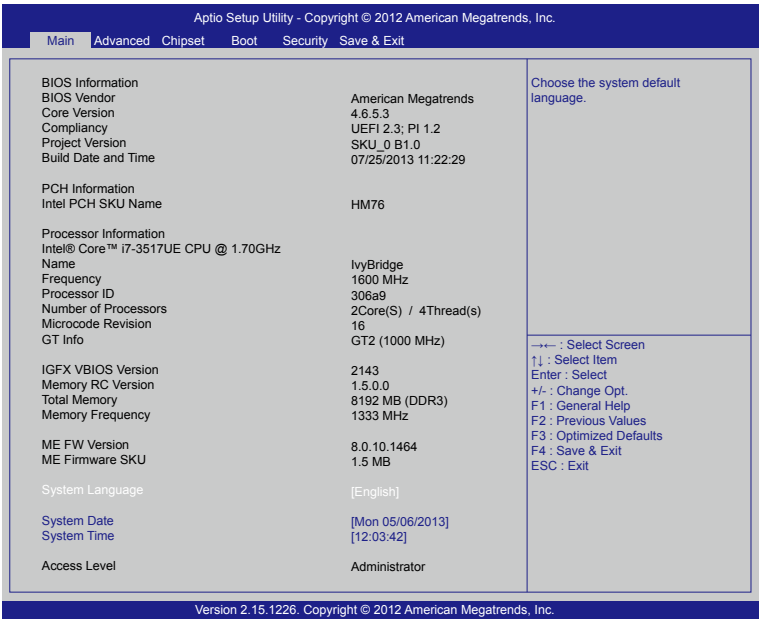
Aptio is AMI's BIOS firmware based on the UEFI Specifications and the Intel Platform Innovation Framework for EFI.

The Aptio Setup Utility can be accessed by pressing the <**Delete**> or <**Esc**> key during POST.

After powering up, the BIOS message appears on the screen. If the message disappears before you respond, restart it by pressing <**Ctrl**> + <**Alt**> + <**Delete**> keys.

3.2. Main Setup

Once you enter the AMI Aptio Setup Utility, the Main Menu appears on the screen. Press the arrow keys to highlight the item and then press the <**Page Up**> <**Page Down**> keys to select the parameters you want in each item.


Aptio Setup Utility - Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
BIOS Information
BIOS Vendor American Megatrends
Core Version 4.6.5.3
Compliancy UEFI 2.3; PI 1.2
Project Version SKU_0 B1.0
Build Date and Time 07/25/2013 11:22:29
PCH Information
Intel PCH SKU Name HM76
Processor Information
Intel® Core™ i7-3517UE CPU @ 1.70GHz
Name IvyBridge
Frequency 1600 MHz
Processor ID 306a9
Number of Processors 2Core(S) / 4Thread(s)
Microcode Revision 16
GT Info GT2 (1000 MHz)
IGFX VBIOS Version 2143
Memory RC Version 1.5.0.0
Total Memory 8192 MB (DDR3)
Memory Frequency 1333 MHz
ME FW Version 8.0.10.1464
ME Firmware SKU 1.5 MB
System Language [English]
System Date [Mon 05/06/2013]
System Time [12:03:42]
Access Level Administrator
Choose the system default language.
→←: Select Screen
↑↓: Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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*Note: Listed at the bottom of the menu are the control keys. If you need any help with the item fields, you can press <**F1**> key, and it will display the relevant information.*

- **BIOS Information**

Options	Description
BIOS Vendor	This item displays the BIOS vendor.
Core Version	This item displays the Core Version.
Compliancy	This item displays the BIOS Compliancy.
Project Version	This item displays the Project name and BIOS's version.
Build Date and Time	This item displays the date and time of the project build.

- **PCH Information**

Options	Description
Intel PCH SKU Name	This item displays the PCH Information.

- **Processor Information**

Options	Description
Brand String	This item displays the CPU processor.
Name	This item displays the CPU type.
Frequency	This item displays the CPU speed.
Processor ID	This item displays the CPU processor ID.
Number of Processors	This item displays CPU # of cores and Threads.
Microcode Revision	This item displays the microcode version.
GT Info	GT2 (1200 MHz)

- **IGFX VBIOS Version**
  This item displays the VBIOS's version.
- **Memory RC Version**
  This item displays the memory RC version
- **Total Memory**
  This item displays the amount of memory installed.
- **Memory Frequency**
  This item displays the speed of memory installed.
- **ME FW Version**
  This item displays the ME FW version.
- **ME Firmware SKU**
  This item displays the ME Firmware.
- **System Language**
  Choose the system default language.
- **System Date**
  This option allows user to set the date on the system real-time clock RTC. Use your keyboard to navigate to the month, day, or year and type in the correct numeric value.

Note: *The Day option automatically changes when you set the Date option.*

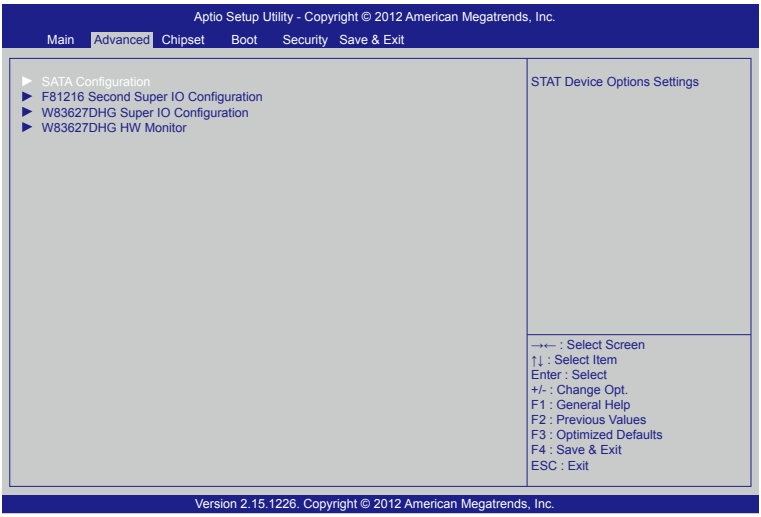
- **System Time**
  This option allows user to set the time on the RTC. Use your keyboard to navigate to the hour, minute, or second and type in the correct numeric value.

Note: *The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.*

- **Access Level**
  This feature enables user to provide access to the user based on the administration rights, whether the user can be an Administrator or Guest User.

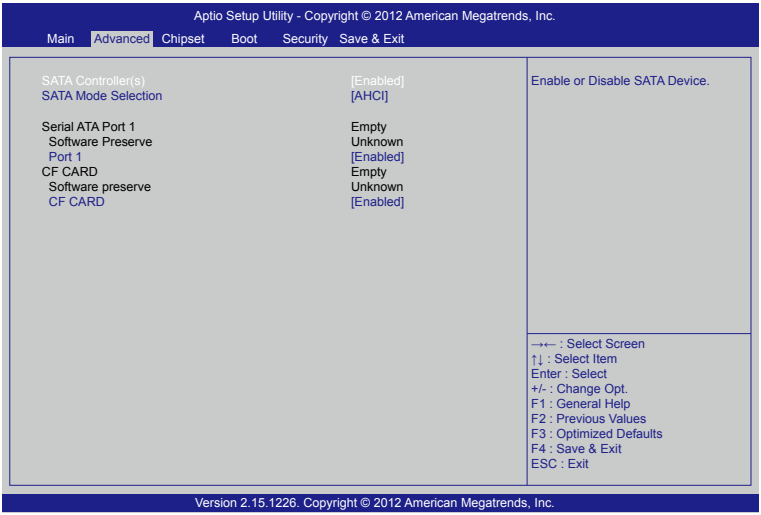
3.3. Advanced Setup

Select the Advanced menu item from the Aptio Setup Utility to enter the Advanced BIOS Setup screen. You can select any item in the left frame of the screen and press <Enter> key to enter its sub-menu and access its parameters.



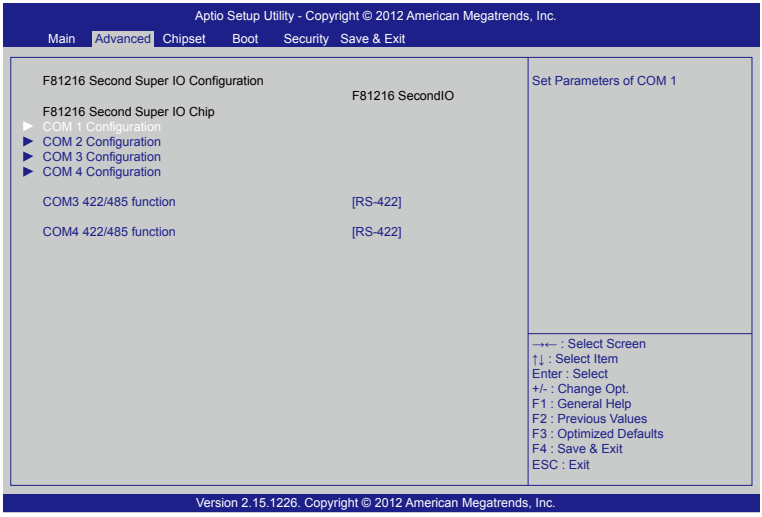
3.3.1. SATA Configuration

This option allows you to view and configure the SATA settings.



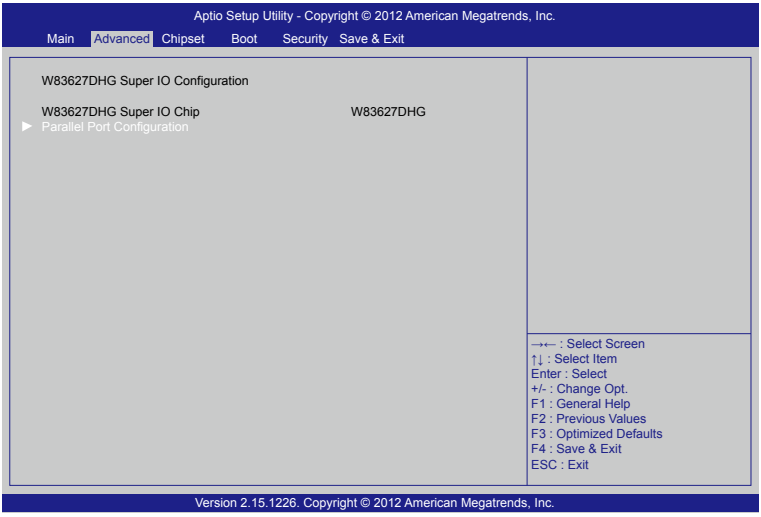
- **SATA Controller(s)**
  Set this opton to enable or disable the SATA devices.
- **SATA Mode Selection**
  Determines the SATA controller(s) will operate in **IDE** or **AHCI** mode.
- **Serial ATA Port 1**
  Enable or disable SATA Port 1.
- **CF CARD**
  Enable or disable CF card socket.

3.3.2. F81216 Second Super IO Configuration


Aptio Setup Utility - Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
F81216 Second Super IO Configuration
F81216 SecondIO
F81216 Second Super IO Chip
COM 1 Configuration
COM 2 Configuration
COM 3 Configuration
COM 4 Configuration
COM3 422/485 function
[RS-422]
COM4 422/485 function
[RS-422]
Set Parameters of COM 1
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

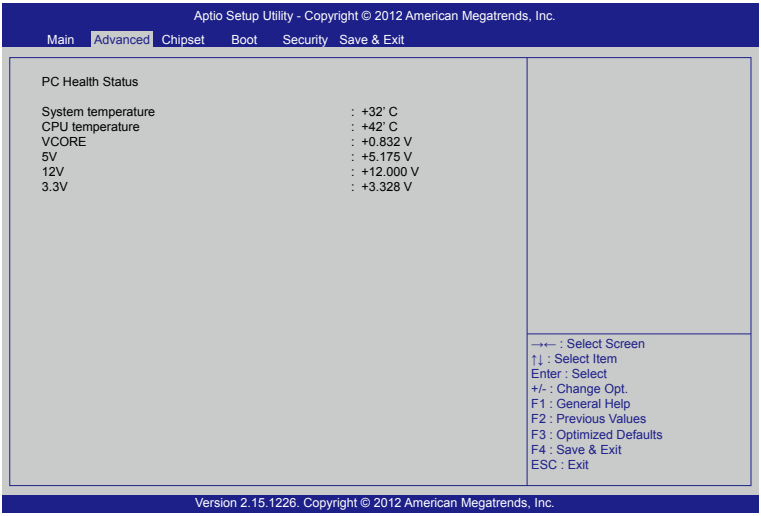
- **COM 1 ~ COM 4 Configuration**
  This option sets parameters of COM1 ~ COM4.
- **COM3 422/485 function**
  This option enables COM_3 422 function or only 485 function.
- **COM4 422/485 function**
  This option enables COM_4 422 function or only 485 function.

3.3.3. W83627DHG Super IO Configuration


Aptio Setup Utility - Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
W83627DHG Super IO Configuration
W83627DHG Super IO Chip W83627DHG
Parallel Port Configuration
→←: Select Screen
↑↓: Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

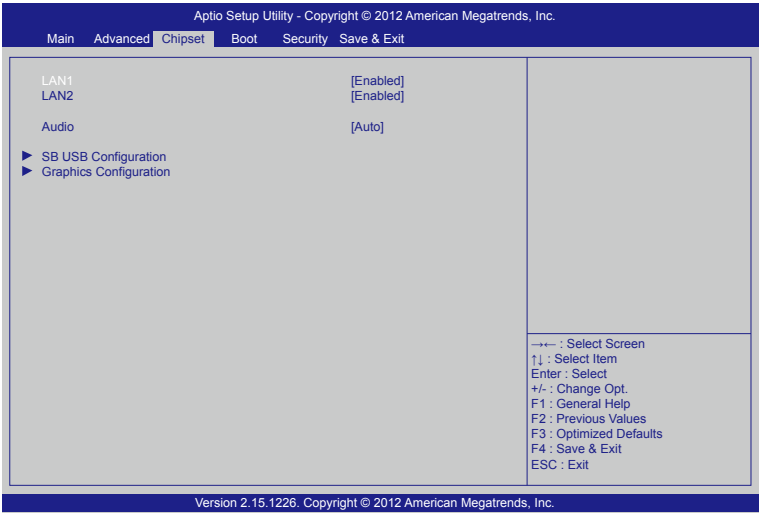
- **Parallel Port Configuration**
  The Parallel Port is used as the GPO.

3.3.4. W83627DHG HW Monitor


Aptio Setup Utility - Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
PC Health Status
System temperature : +32' C
CPU temperature : +42' C
VCORE : +0.832 V
5V : +5.175 V
12V : +12.000 V
3.3V : +3.328 V
→←: Select Screen
↑↓: Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

3.4. Chipset Setup

Select the Chipset menu item from the Aptio Setup Utility to enter the Chipset Configuration Setup screen. You can select any item in the left frame of the screen and press <Enter> key to enter its sub-menu and access its parameters.

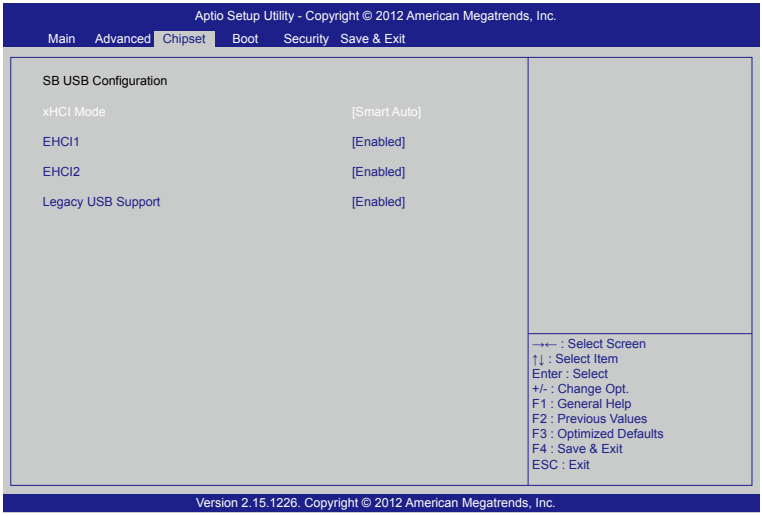

Aptio Setup Utility - Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
LAN1 [Enabled]
LAN2 [Enabled]
Audio [Auto]
SB USB Configuration
Graphics Configuration
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

- **LAN1 ~ LAN2**
  Control the LAN port Enabled / Disabled.
- **Audio**
  Control Detection of the Azalia device.

Options	Description
Disabled	Azalia will be unconditionally disabled.
Auto	Azalia will be enabled if present, disabled otherwise.

- **SB USB configuration**
  SB USB Configuration settings.
- **Graphics Configuration**
  Graphics parameters.

3.4.1. PCH-IO Configuration


Aptio Setup Utility - Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
SB USB Configuration
xHCI Mode [Smart Auto]
EHCI1 [Enabled]
EHCI2 [Enabled]
Legacy USB Support [Enabled]
→←: Select Screen
↑↓: Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

- **xHCI Mode**

Options	Description
Disabled / Auto / Smart Auto	Mode of operation of xHCI controller.

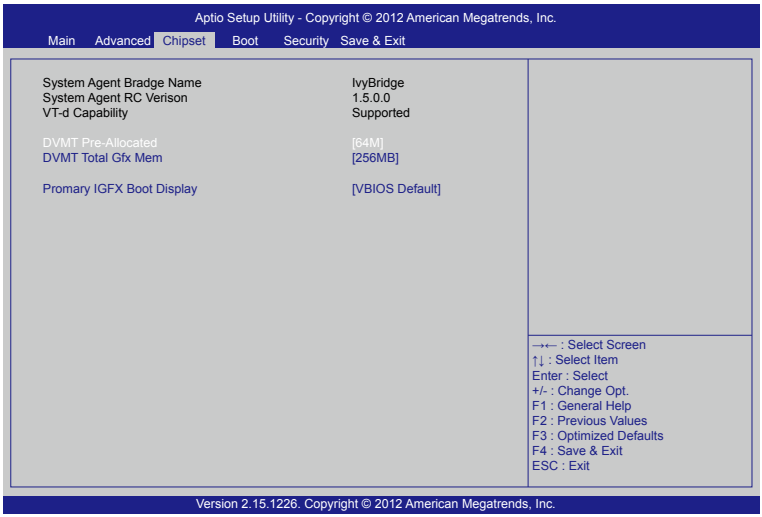
- **EHCI1, EHCI2**

Options	Description
Enable / Disable	Control the USB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.

- **Legacy USB Support**

Options	Description
Enabled	Enables Legacy USB support.
Disabled	Keep USB devices available only for EFI applications.
Auto	Disables legacy support if no USB devices are connected.

3.4.1.1. Graphics Configuration



- **DVMT Pre-Allocated**

Options	Description
32M / 64M / 96M / 128M / 160M / 192M / 224M / 256M / 288M / 320M / 352M / 384M / 416M / 448M / 480M / 512M / 1024M	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

- **DVMT Total Gfx Mem**

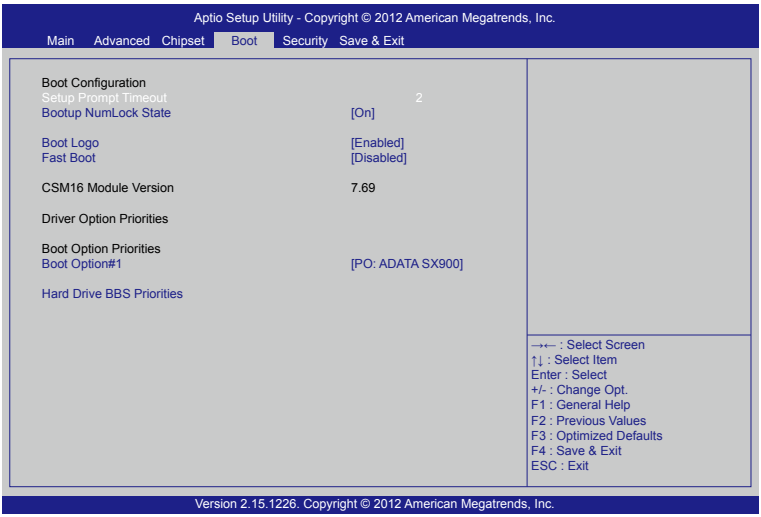
Options	Description
128M / 258M / MAX	Select DVMT 5.0 Total Graphics Memory size used by the Internal Graphics Device.

- **Primary IGFX Boot Display**

Options	Description
VBIOS Default / D_SUB / HDMI 1 / HDMI 2	Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display

3.5. Boot Setup

Choose boot priority.


Aptio Setup Utility - Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Boot Configuration
Setup Prompt Timeout 2
Bootup NumLock State [On]
Boot Logo [Enabled]
Fast Boot [Disabled]
CSM16 Module Version 7.69
Driver Option Priorities
Boot Option Priorities
Boot Option#1 [PO: ADATA SX900]
Hard Drive BBS Priorities
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
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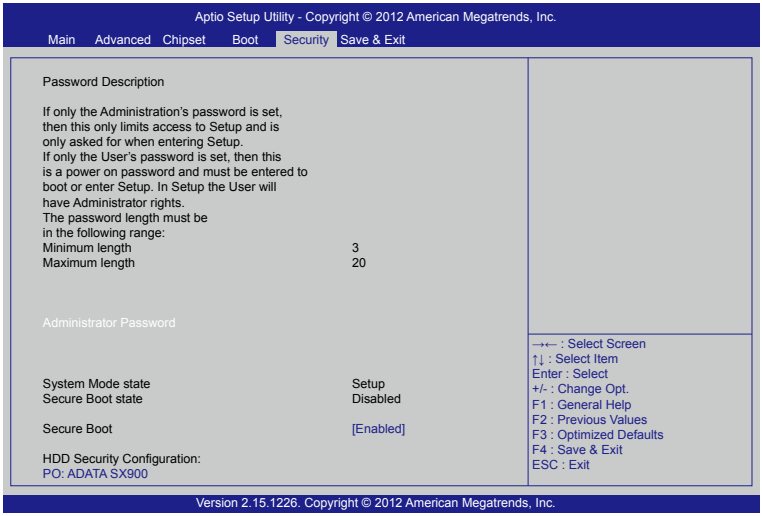
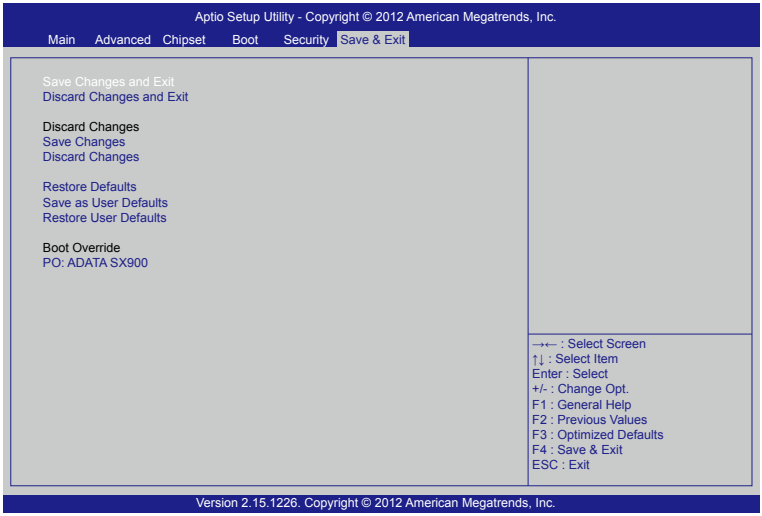
- **Setup Prompt timeout**
  Number of seconds to wait for setup activation key. 65535 (0xFFFF) stands for indefinite waiting.
- **Bootup NumLock State**
  Select the keyboard NumLock State.
- **Boot Logo**
  Enables or disables Quiet Boot option.
- **Fast Boot**
  Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.
- **Boot Option #1**
  Sets the system boot order.
- **Hard Driver BBS Priorities**
  Set the order of the legacy devices in this group.

3.6. Security Setup


Aptio Setup Utility - Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Password Description
If only the Administration's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If only the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password length must be in the following range:
Minimum length 3
Maximum length 20
Administrator Password
System Mode state Setup
Secure Boot state Disabled
Secure Boot [Enabled]
HDD Security Configuration:
P0: ADATA SX900
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

- **Administrator Password**
  Set administrator password.
- **Secure Boot**
  Secure Boot flow control. Secure Boot is possible only if System runs in User Mode.

3.7. Save & Exit Setup


Aptio Setup Utility - Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Save Changes
Discard Changes
Restore Defaults
Save as User Defaults
Restore User Defaults
Boot Override
P0: ADATA SX900
→← : Select Screen
↑↓ : Select Item
Enter : Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.15.1226. Copyright © 2012 American Megatrends, Inc.

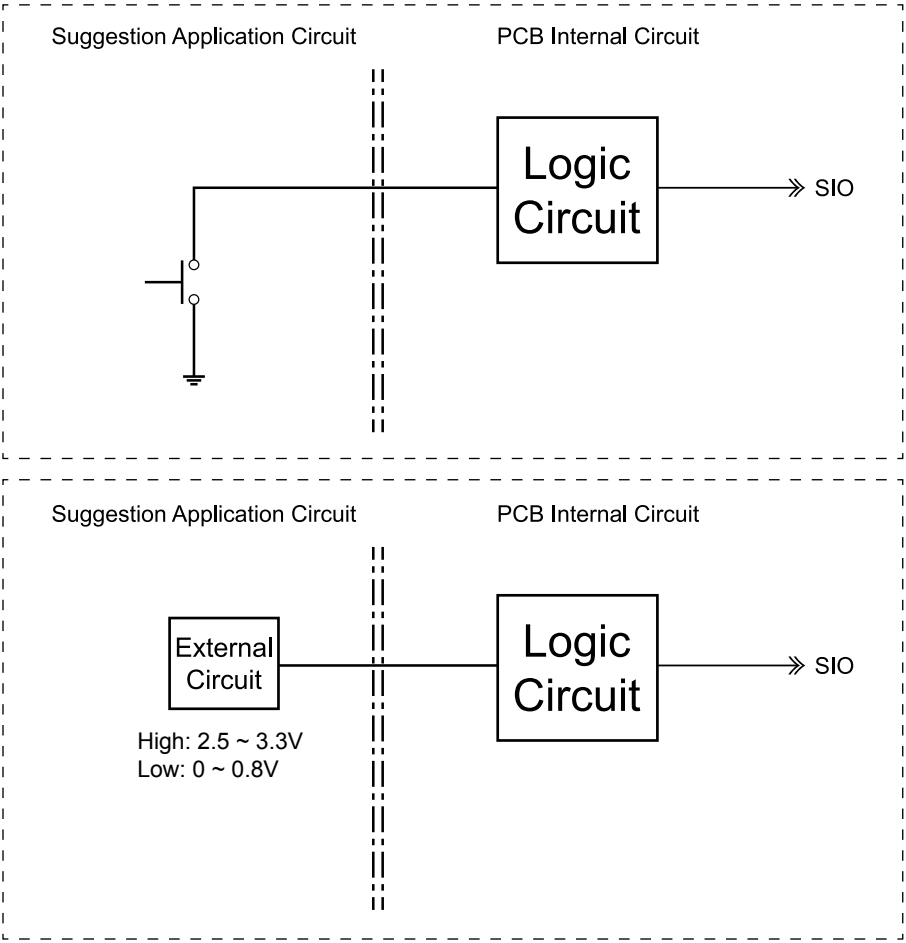
- **Save Changes and Exit**
  Exit system setup after saving the changes.
- **Discard Changes and Exit**
  Exit system setup without saving any changes.
- **Save Changes**
  Save changes done so far to any of the setup options.
- **Discard Changes**
  Discard changes done so far to any of the setup options.
- **Restore Defaults**
  Restore/Load default values for all the setup options.
- **Save as User Defaults**
  Save the changes done so far as User Defaults.
- **Restore User Defaults**
  Restore the User Defaults to all the setup options.

4. Function Description

4.1. Digital Inputs

There are 8 digital inputs for general purpose input. You can read the status of any input through the software API. You can define their purpose for any digital input function. Please refer to the "**Software Installation and Programming Guide**" chapter for the detailed information on how to use the API.

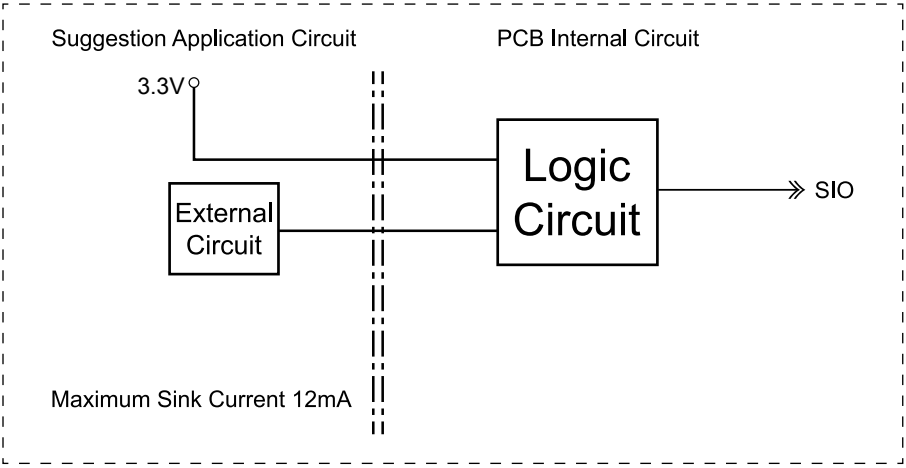
The following diagrams state how to connect the digital inputs to the devices on the system.



4.2. Digital Outputs

There are 8 digital outputs for general purpose output. The eight digital outputs are TTL level Schmitt-trigger pin with 12mA source-sink capability for each channel, and the maximum output voltage is 3.3V. You can control the output status of these digital outputs through the software API. Please refer to the "**Software Installation and Programming Guide**" chapter for the detailed information on how to use the API.

The following diagrams state how to connect the digital inputs to the devices on the system.



4.3. Watchdog Timer

If you set a watchdog timer, you can use it to reset the system when system hangs up due to hardware issue. After you set the watchdog timer, the software shall re-set the timer to re-start a new cycle before it time-out. Please refer to Chapter 6. Software Installation and Programming Guide for how to set the watchdog timer.

4.4. Serial ATA (SATA)

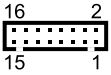
There is one SATA III port on the main board. There is also one SATA power connectors (5V only power) for the SATA hard disk. Please be careful about it when you install SATA hard disk driver.

4.5. USB

There are three USB 3.0 connectors provided on the mainboard. These USB 3.0 connectors are backward compatible with the USB 2.0. There are also two USB 2.0 ports provided (1 for Mini PCIe, 1 for Combo Connector).

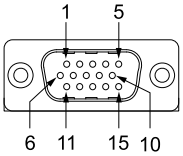
4.6. GPI / GPO connector definition

4.6.1. GPIO2 / COM4 pin definition



PCBA

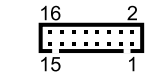
Pin #	Signal	Pin #	Signal
1	GPI0	2	GPI1
3	GPI2	4	GPI3
5	GND	6	GND
7	TX4+	8	TX4-
9	RX4+	10	RX4-
11	GPI4	12	GPI5
13	GPI6	14	GPI7
15	Reserved	16	NC



DB15

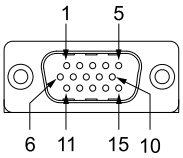
Pin #	Signal	Pin #	Signal
1	GPI0	2	GPI1
3	GPI2	4	GPI3
5	GND	6	GND
7	TX4+	8	TX4-
9	RX4+	10	RX4-
11	GPI4	12	GPI5
13	GPI6	14	GPI7
15	Reserved	N/A	N/A

4.6.2. GPIO1 / COM3 pin definition



PCBA

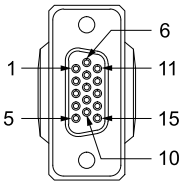
Pin #	Signal	Pin #	Signal
1	GPO0	2	GPO1
3	GPO2	4	GPO3
5	GND	6	GND
7	TX3+	8	TX3-
9	RX3+	10	RX3-
11	GPO4	12	GPO5
13	GPO6	14	GPO7
15	Reserved	16	NC



DB15

Pin #	Signal	Pin #	Signal
1	GPO0	2	GPO1
3	GPO2	4	GPO3
5	GND	6	GND
7	TX3+	8	TX3-
9	RX3+	10	RX3-
11	GPO4	12	GPO5
13	GPO6	14	GPO7
15	Reserved	N/A	N/A

4.6.3. GPI / GPO cable color definition



GPI/GPO DB15 Cable

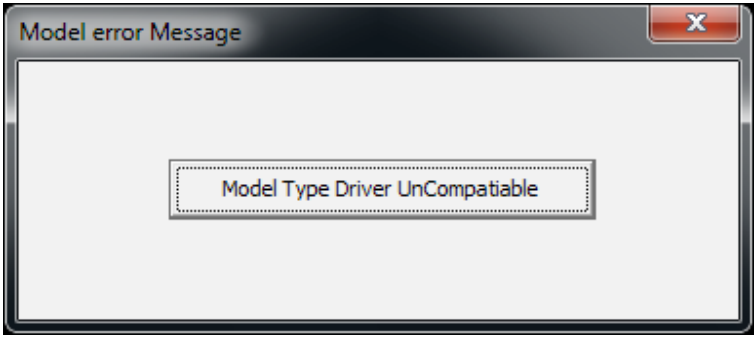
Pin #	Color	Pin #	Color
1	Brown	2	Orange
3	Green	4	Blue
5	Black	6	Glay
7	Red/White	8	White
9	Red	10	Purple
11	Light Green	12	Light Blue
13	Pink	14	Brown/White
15	Yellow	N/A	N/A

5. Driver and Utility Installation

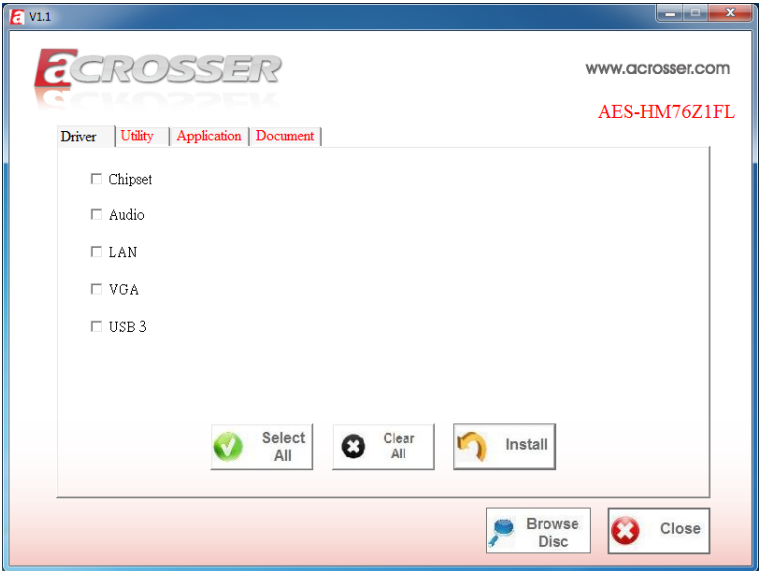
5.1. CD-Title Introduction

Acrosser's CD-Title is a compact driver and utility CD that enables a fast and easy installation for all the drivers, utilities, applications and documents this product may need.

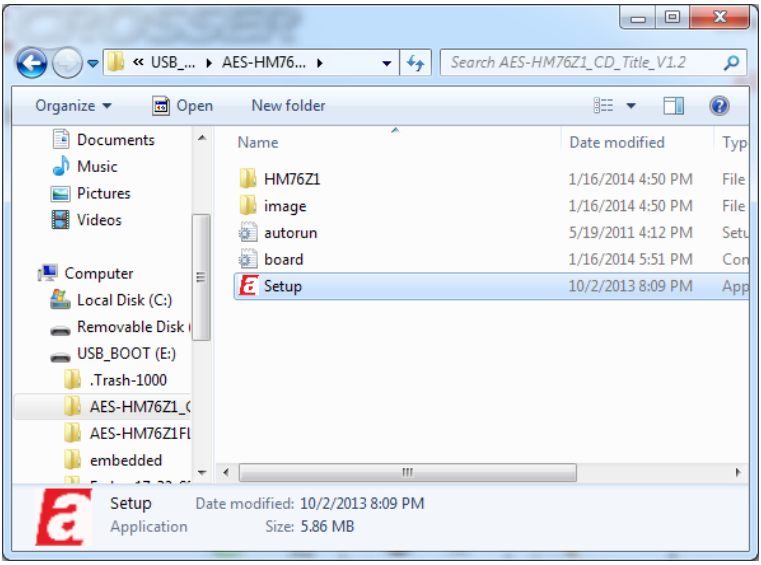
Put the CD-Title into your CD-ROM drive. The CD-Title will automatically detect the mainboard information to see if they are matched. The following error messages appear if you use an incorrect CD-Title version with your mainboard. Please find the correct CD-Title to proceed.



Put the correct CD-Title of your mainboard into your CD-ROM drive. The following installation screen should appear.

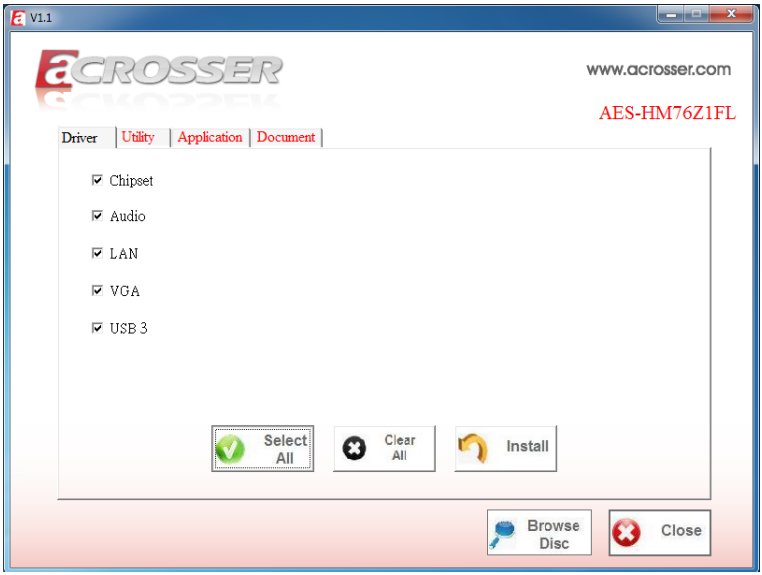


If not, enter the root folder of the CD-Title, run the excution file "**Setup.exe**".



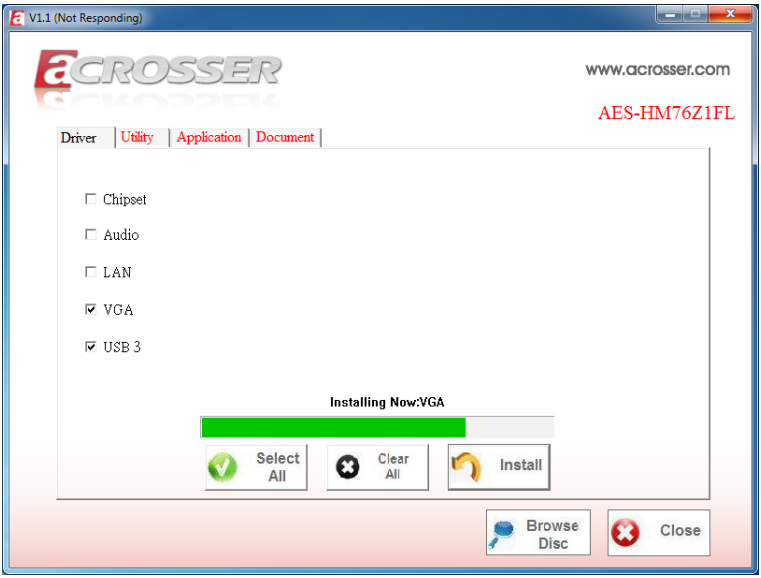
5.2. Driver Installation Page

Step 1: Select the "**Driver**" tab. Click the "**Select All**" button to select all the driver checkboxes, and then click "**Install**" button to start installing all the selected drivers.

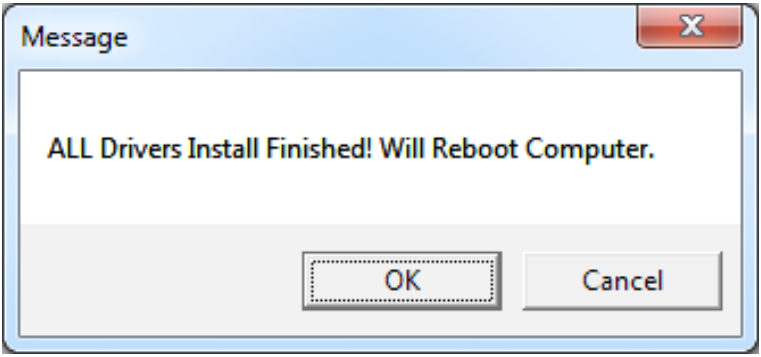


*Note: Select the "**Clear All**" button will clear all the selections, and then you can select the driver you want to install one by one, but the "**Chipset**" driver has to be installed before installing all the others.*

Step 2: The driver installation started.

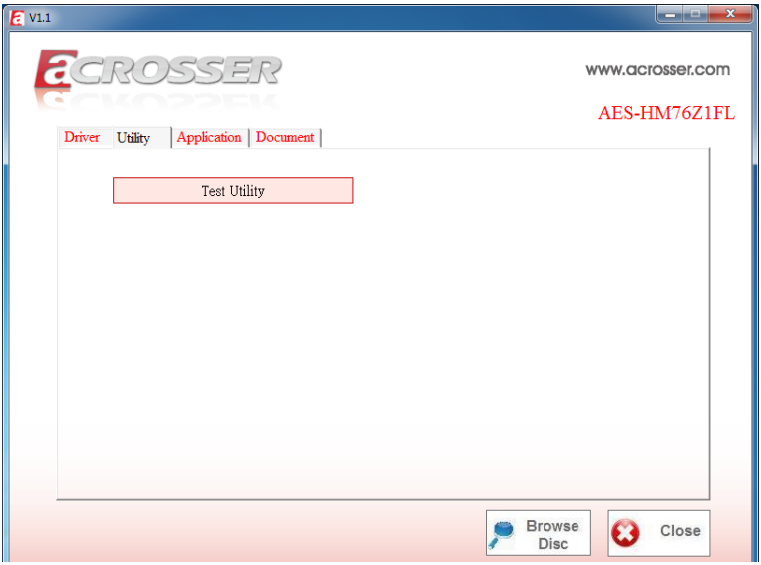


Step 3: The driver installation finished. The configuration will be valid after reboot.

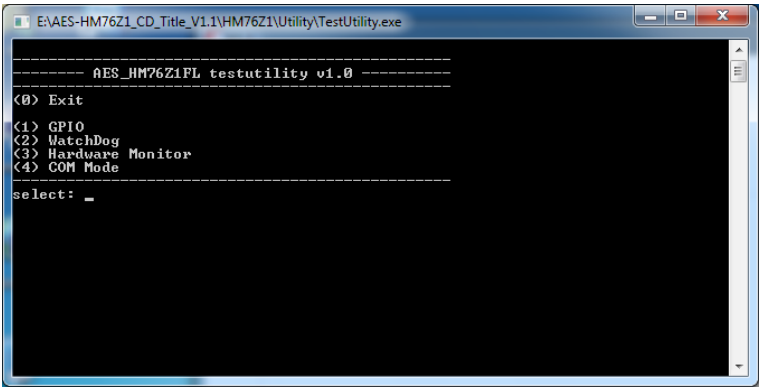


5.3. Utility Installation Page

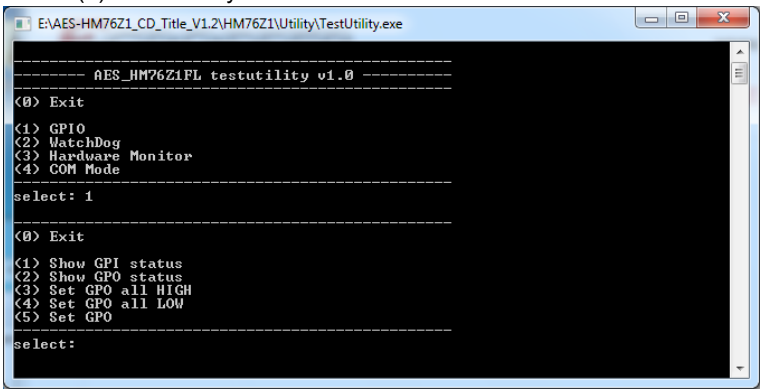
Step 1: Select the “**Utility**” tab. Click the “**Test Utility**” box.



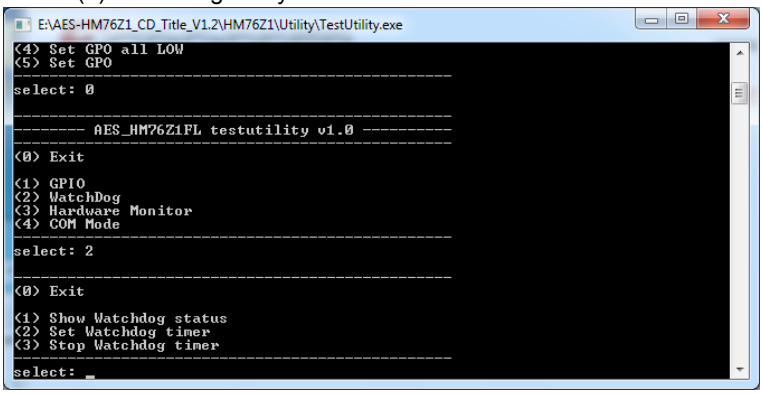
Step 2: The “Test Utility” screen appears.



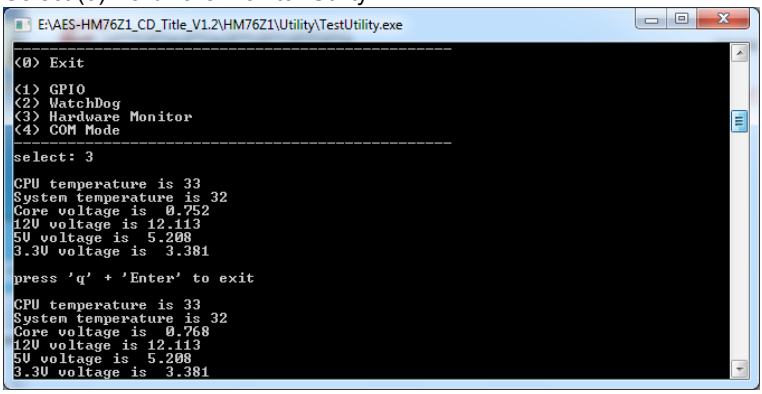
Select (1) GPIO Utility:



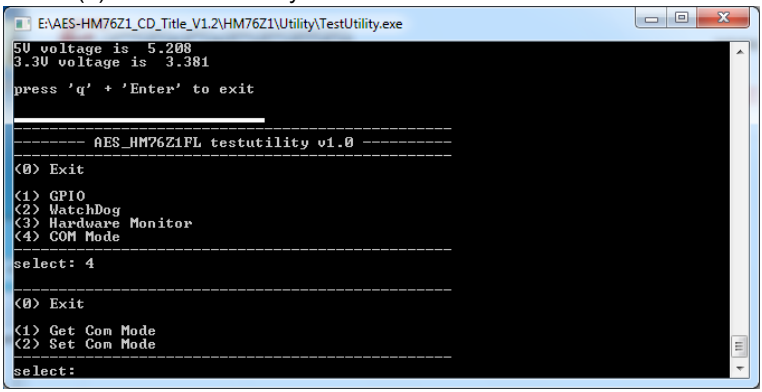
Select (2) WatchDog Utility:



Select (3) Hardware Monitor Utility:

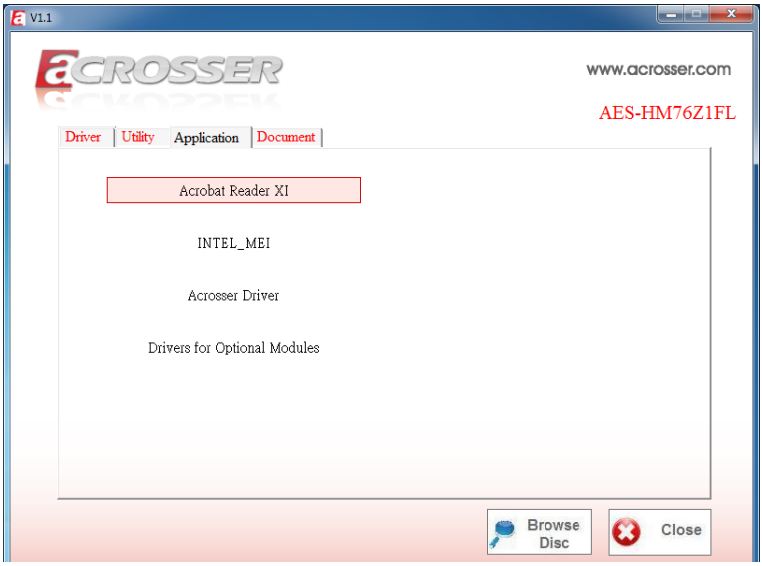


Select (4) COM Mode Utility:

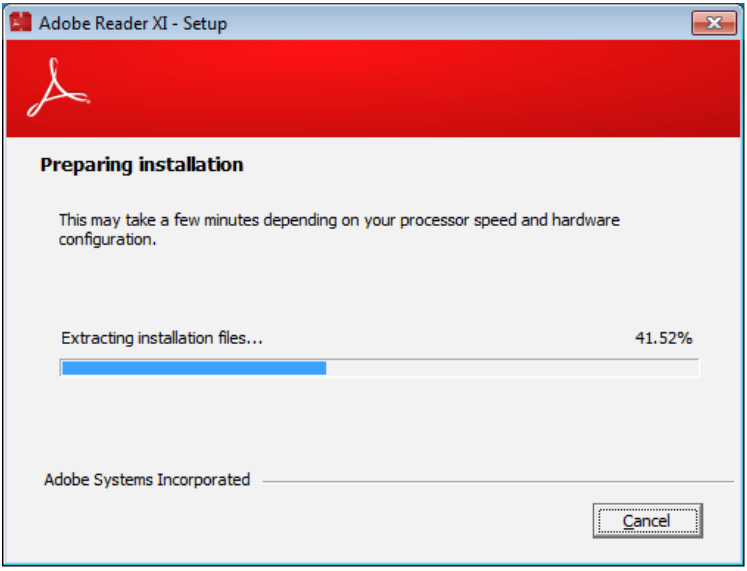


5.4. Application Installation Page

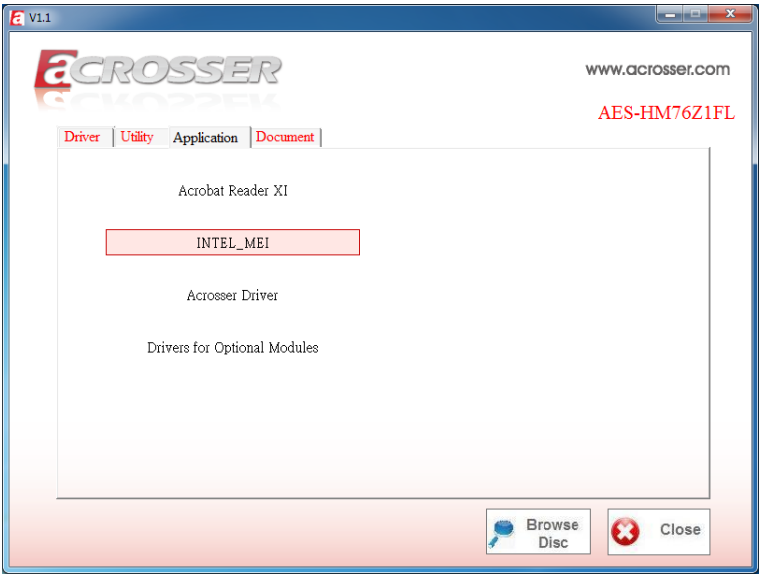
Step 1: Select the "**Application**" tab. Click the "**Acrobat Reader XI**" box.

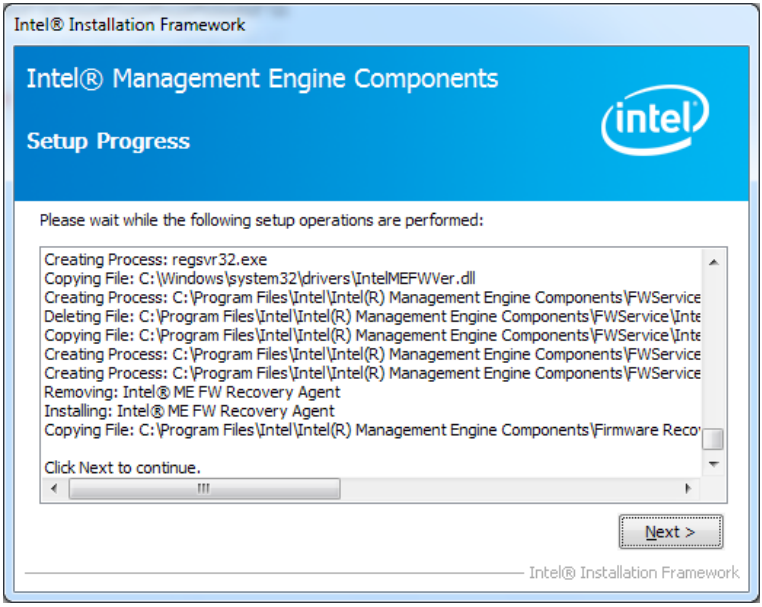


*Note: The "**Acrobat Reader**" is necessary for reading the user manual in PDF file format.*

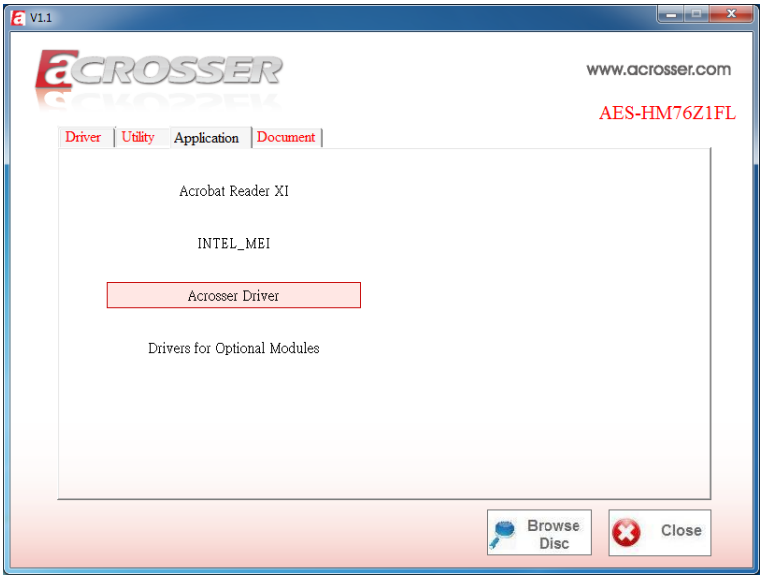

Adobe Reader XI - Setup
Preparing installation
This may take a few minutes depending on your processor speed and hardware configuration.
Extracting installation files...
41.52%
Adobe Systems Incorporated
Cancel

Step 2: Install "**Intel_MEI**" components driver.

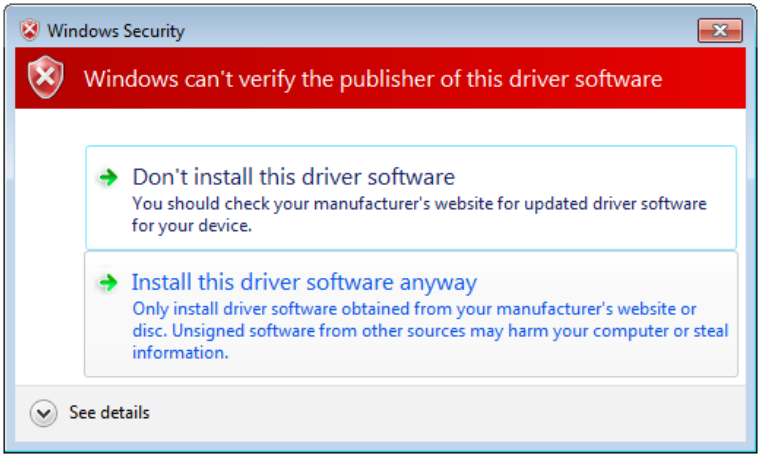



Intel® Installation Framework
Intel® Management Engine Components
Setup Progress
Please wait while the following setup operations are performed:
Creating Process: regsvr32.exe
Copying File: C:\Windows\system32\drivers\IntelMEFWVer.dll
Creating Process: C:\Program Files\Intel\Intel(R) Management Engine Components\FWService
Deleting File: C:\Program Files\Intel\Intel(R) Management Engine Components\FWService\Inte
Copying File: C:\Program Files\Intel\Intel(R) Management Engine Components\FWService\Inte
Creating Process: C:\Program Files\Intel\Intel(R) Management Engine Components\FWService
Creating Process: C:\Program Files\Intel\Intel(R) Management Engine Components\FWService
Removing: Intel® ME FW Recovery Agent
Installing: Intel® ME FW Recovery Agent
Copying File: C:\Program Files\Intel\Intel(R) Management Engine Components\Firmware Reco
Click Next to continue.
Next >
Intel® Installation Framework

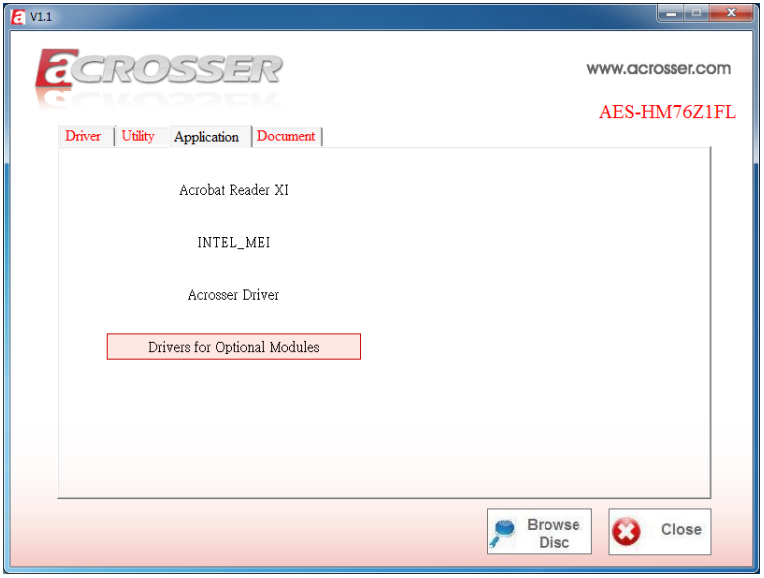
Step 3: Install "**Acrosser Driver**" into the system. Windows OS will create "**AcroDev**" device.



If the “Windows Security” warning message appears, select “**Install this driver software anyway**” to go on next step.

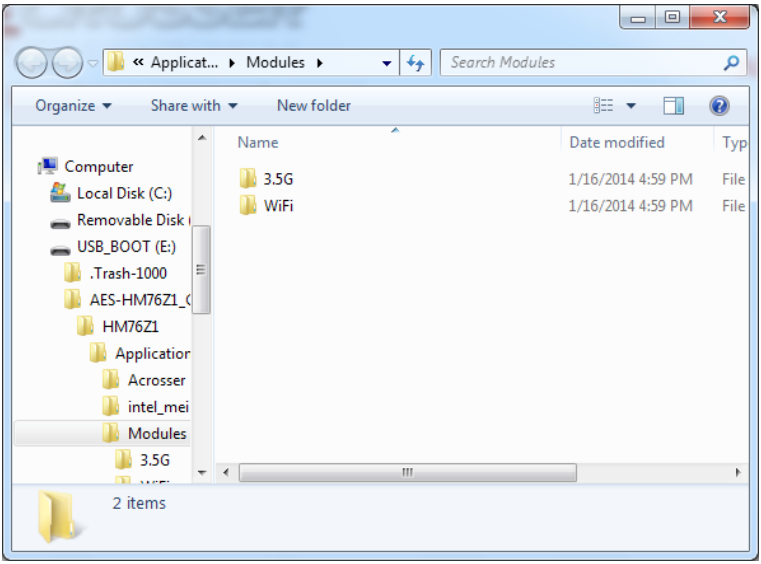

Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

Step 4: Install “**Drivers for Optional Modules**”.



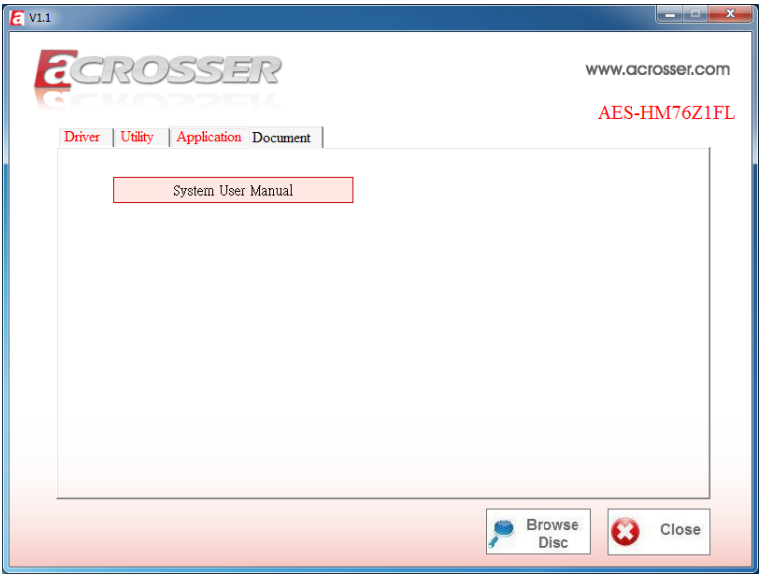
Note: This driver installation is necessary for operating the optional 3.5G or WiFi module.

According to your application, run the "**.EXE**" file in the **3.5G** or **WiFi** folder to install its driver.



5.5. Document Page

The user manual is stored in the "**Document**" folder.



Note: *To read the PDF file, you will have to install "**Acrobat Reader**" first. Please refer to the "**Application Installation Page**".*

6. Software Installation and Programming Guide

6.1. Introduction

6.1.1. Overview

This model provides four type APIs which are GPI/GPO interface, Watchdog timer interface, Hardware Monitor interface and Serial Mode interface. Users can use the GPI/GPO API configure and access the GPI/GPO interface and the Watchdog timer. The GPI/GPO has eight input pins and eight output pins. The Watchdog timer can be set to 1~255 seconds. Setting the timer to zero disables the timer. The remaining seconds of the timer to reboot can be read from the timer. The Hardware Monitor API can get CPU Temperature, System Temperature, CPU Core Voltage, 5V Voltage, 12V Voltage, and 3.3V Voltage. Serial Mode can get and set COM3 and COM4 current status is RS422, RS485 Mode.

6.2. API List and Descriptions

6.2.1. General

Table 1. General Syntax Description

Syntax:	**lib_init(void)**
Description:	Library initialization, using this library must call this function first.
Parameters:	None
Return Value:	0: Successful -1: Fail

Syntax:	**lib_close(void)**
Description:	Library close, when you not used this library must call this function.
Parameters:	None
Return Value:	0: Successful -1: Fail

6.2.2. GPIO

Table 2. GPIO Syntax Description

Syntax:	get_gpi_status(int pin)
Description:	Get the status of GPIO input pins status.
Parameters:	This function takes an integral variable as the parameter. The pin0 ~ 7 is pins.
Return Value:	1: HIGH 0: LOW

Syntax:	get_gpo_status(int pin)
Description:	Get the status of GPIO output pins status.
Parameters:	This function takes an integral variable as the parameter. The pin0 ~ 7 is pins.
Return Value:	1: HIGH 0: LOW

Syntax:	set_gpo(int pin, int value)
Description:	Set the status of GPIO Output value.
Parameters:	Set value 0 is Low, 1 is High(Linux)
Return Value:	None

6.2.3. Watchdog

Table 3. Watchdog Syntax Description

Syntax:	wdt_start(int value)
Description:	This function of the watchdog time to start counter.
Parameters:	The parameter ‘value’ is the value to set to watchdog timer register. The range is 1 ~ 255.
Return Value:	None

Syntax:	wdt_stop(Void)
Description:	Any time call this function will stop Watchdog Timer.
Parameters:	None
Return Value:	None

Syntax:	get_wdt_count()
Description:	This function read the value of the watchdog time counter.
Parameters:	None
Return Value:	This function returns the value of the time counter.

6.2.4. Hardware Monitor

Table 4. Hardware Monitor Syntax Description

Syntax:	get_cpu_temp(void)
Description:	Get the CPU Temperature.
Parameters:	None
Return Value:	An Integral number.

Syntax:	get_sys_temp(void)
Description:	Get the System Temperature.
Parameters:	None
Return Value:	An Integral number.

Syntax:	get_cpu_core_voltage(void)
Description:	Get the CPU Core Voltage.
Parameters:	None
Return Value:	A floating number.

Syntax:	get_5_voltage(void)
Description:	Get the 5V Voltage.
Parameters:	None
Return Value:	A floating number.

Syntax:	get_12_voltage(void)
Description:	Get the 12V Voltage.
Parameters:	None
Return Value:	A floating number.

Syntax:	get_33_voltage(void)
Description:	Get the 3.3V Voltage.
Parameters:	None
Return Value:	A floating number.

6.2.5. Serial Mode

Table 5. Serial Mode Syntax Description

Syntax:	get_comport_mode(int com)
Description:	Get the COM port mode.
Parameters:	0: COM3 1: COM4
Return Value:	0: RS485 1: RS422

Syntax:	set_comport_mode(int com, int mode)
Description:	Set the COM port mode.
Parameters:	0: COM3 1: COM4 0: RS485 1: RS422
Return Value:	None

7. FAQ

Q 1. Why the Linux operating system can not re-install by the same storage device?

- Make sure to clean up the original data on the storage device before installation.
- It is recommended to format the storage device before installation.

Q 2. Why the monitor display abnormally on screen during Linux installation?

- Change another monitor and try to install again.
- Install the OS in "**basic graphics mode**".

Q 3. Why the display resolution only for 800x600 and 1024x768 at X Window under Basic Graphics Mode?

- Make sure the Vender and Project of monitor detected correctly on the Display configuration.
- Contact your monitor vender to get the driver for Linux.
- Adjust the settings in XORG.CONF:
  - Determine the interval between the two frequencies (Max. and Min.) for both horizontal scanning and vertical scanning your monitor supported.
    For example:
    HorizSync: 30.0 ~ 80
    VertRefresh: 50 ~ 75
  - Add the frequencies in XORG.CONF for that "vesa" device and monitor.
  - Reboot system.

Q 4. Does my system support Windows 8?

- The system is designed and verified with Windows 7, Fedora 17 and Ubuntu 12.10. Acrosser did not verify this system with Windows 8. Please contact Acrosser local sales representative or authorized channels to help you confirm whether a new Windows 8 driver is provided.

Q 5. Why do we get error message when we execute utility program?

- Make sure all the drivers have been installed correctly.
- If the problem still exist, please contact Acrosser FAE or authorized sales channels.

Q 6. What can I do if my system does not power on?

- If your system can not power on via adapter, below are a few steps you can follow to attempt to correct the issue.
  - Ensure that the power cord and AC adapter are plugged solid and not loose fitting.
  - Ensure the adapter output is DC 12V (min. 60W)

- Ensure the DC 12V output correctly connect to the system.
- Attempt to use a different electrical outlet or a different adapter.

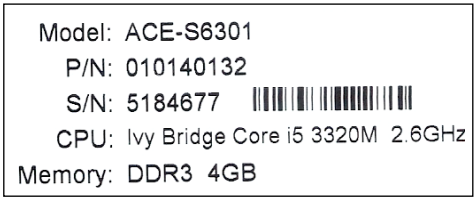
- If your system can not power on via ATX PSU, below are some steps you can fellow to attempt to correct this problem.
  - ATX PSU has some protections. Ensure that PSU PS_ON# signal connect to GND and the PSU output DC 12V to the system.
  - Because the system only use DC 12V, it will not consume 3.3V and 5V output. Some PSUs could mis-judge the situations and stop any voltage output.
  - Ensure the DC 12V output correctly connect to the system.
  - Attempt to use a different electrical outlet or a different PSU.

Q 7. No display when power on?

- Make sure all cables are connected correctly and the power has been turned on:
- Restore CMOS default setting via CMOS headers, then reboot the system.
- If the problem still exist, please keep the necessary components (e.g. CPU, memory, keyboard and HDD) for testing:
- If the system could power on well with the above configuration, please plug back the other components one by one to find out which one may cause this problem.
- If the system still could not power on, please listen if there is any warning beeps.
  - Memory issue:
    - Clean the Golden Finger of memory.
    - Clean the memory slots.
    - Leave only one memory stick to test.
    - If convenient, please change different memory modules to test again.
  - CPU issue:
    - Check whether the CPU is in our supported CPU.
    - Check whether there are any damagers of your CPU or CPU socket.
    - Check whether the CPU fan is correctly connected.
  - If the problem still exist, please contact Acrosser FAE or authorized sales channels.

Q 8. Where is the serial number located on my system?

- The serial number (S/N) is an alpha-numeric character located on the bottom or side chassis.



(for reference only)

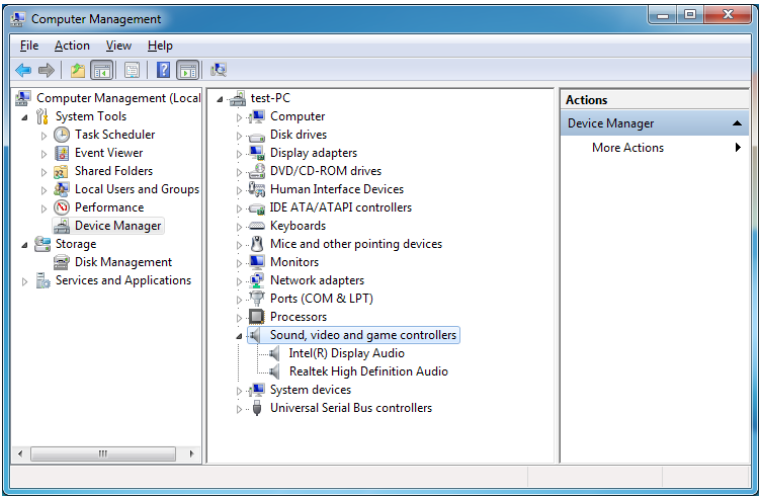
- ***How do I connect the second monitors to my system?***
- Basically, there are “duplicate” and “extend” mode for the second monitor.
  - “duplicate” mode – you will see the same contents on both monitors.
  - “extend” mode – your monitors display different contents, and you can drag your contents between the first and second monitor.
- Ensure the display device setting is correct and monitor cables are connected well.
  - For device setting, it could be different because of different operating systems and S/W version.
  - You can search from “Google” as reference setting.
- If the problem still exist, please contact Acrosser FAE or authorized sales channels.

Q 9. My system has audio problem?

- Make sure to enable the on-board audio function in BIOS menu.

Aptio Setup Utility - Copyright © 2012 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
LAN1 [Enabled]
LAN2 [Enabled]
Audio [Auto]
SB USB Configuration
Graphics Configuration

- Make sure the audio driver and device was installed successfully.

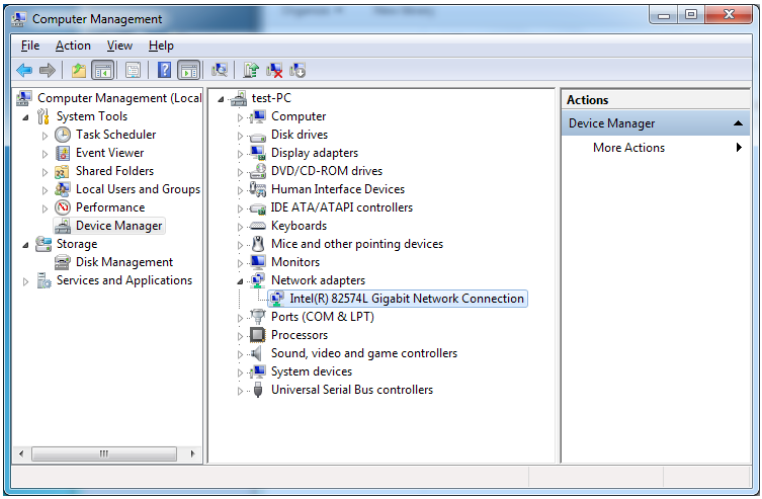


- Make sure the speaker is connected to the correct connector.
- Check if the audio function is set to “MUTE”.
- Please adjust the audio volume louder.

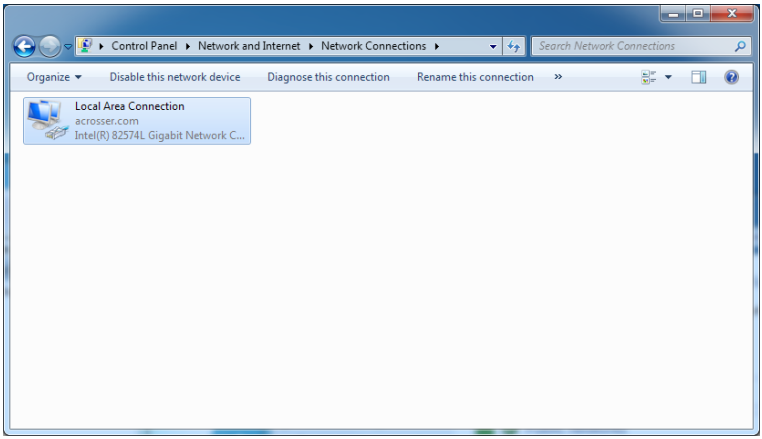
- If the problem still exist, please contact Acrosser FAE or authorized sales channels.

Q 10. My system can not connect to Internet?

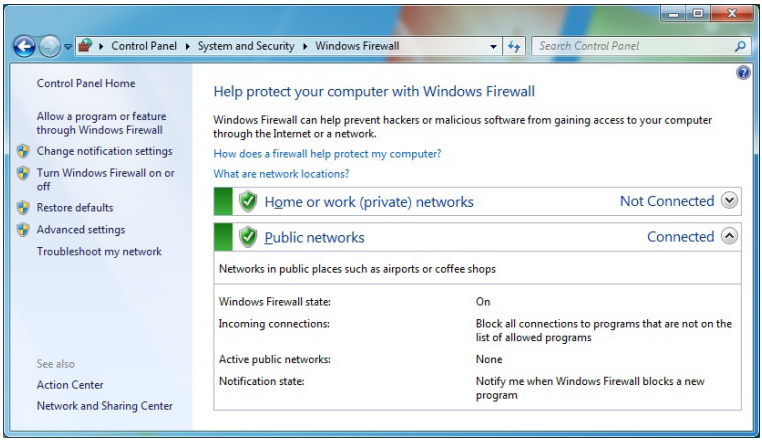
- Make sure the network adapter can be recognized in Device Manager.
- If there is question mark or exclamation mark in the network adapter, please re-install the network driver.
- If the problem still exist, please contact Acrosser FAE or sales representative for testing.



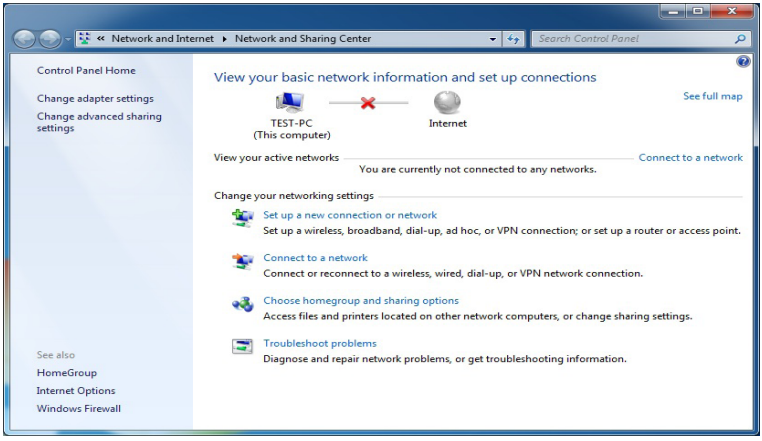
- Make sure the Network Connections/Local Area Connection is enabled (right click and choose “Enable”).



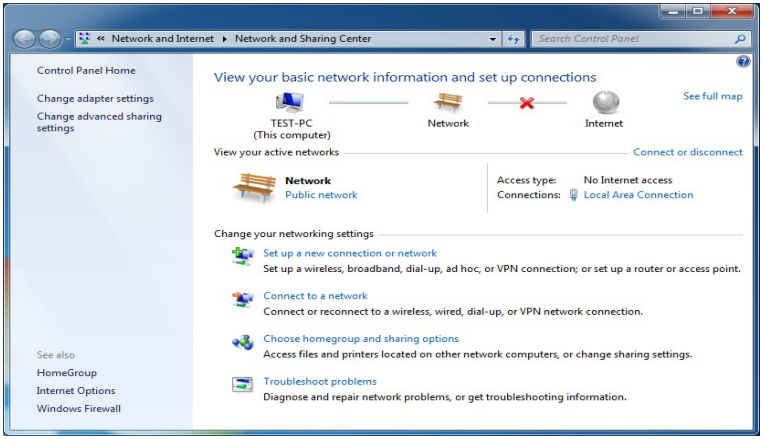
- If the problem still exist, please shut down the firewall and anti-virus software.


Control Panel ▸ System and Security ▸ Windows Firewall
Search Control Panel
Control Panel Home
Allow a program or feature through Windows Firewall
Change notification settings
Turn Windows Firewall on or off
Restore defaults
Advanced settings
Troubleshoot my network
See also
Action Center
Network and Sharing Center
Help protect your computer with Windows Firewall
Windows Firewall can help prevent hackers or malicious software from gaining access to your computer through the Internet or a network.
How does a firewall help protect my computer?
What are network locations?
Home or work (private) networks
Not Connected
Public networks
Connected
Networks in public places such as airports or coffee shops
Windows Firewall state:
On
Incoming connections:
Block all connections to programs that are not on the list of allowed programs
Active public networks:
None
Notification state:
Notify me when Windows Firewall blocks a new program

- If the Network Connections/Local Area Connection show “no connection”, please check your network cable connection.


« Network and Internet ▸ Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
See also
HomeGroup
Internet Options
Windows Firewall
View your basic network information and set up connections
See full map
TEST-PC
(This computer)
Internet
View your active networks
Connect to a network
You are currently not connected to any networks.
Change your networking settings
Set up a new connection or network
Set up a wireless, broadband, dial-up, ad hoc, or VPN connection; or set up a router or access point.
Connect to a network
Connect or reconnect to a wireless, wired, dial-up, or VPN network connection.
Choose homegroup and sharing options
Access files and printers located on other network computers, or change sharing settings.
Troubleshoot problems
Diagnose and repair network problems, or get troubleshooting information.

- If the Network Connections/Local Area Connection show “limited connection”, please disable and enable your connection to fix this problem. Or, you can unplug and plug the LAN cable to fix the problem.


Network and Internet ▸ Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
See full map
TEST-PC
(This computer)
Network
Internet
View your active networks
Connect or disconnect
Network
Public network
Access type: No Internet access
Connections: Local Area Connection
Change your networking settings
Set up a new connection or network
Set up a wireless, broadband, dial-up, ad hoc, or VPN connection; or set up a router or access point.
Connect to a network
Connect or reconnect to a wireless, wired, dial-up, or VPN network connection.
Choose homegroup and sharing options
Access files and printers located on other network computers, or change sharing settings.
Troubleshoot problems
Diagnose and repair network problems, or get troubleshooting information.
See also
HomeGroup
Internet Options
Windows Firewall

- If the problem still exist, please contact your MIS whether there are any DHCP or IP configuration or ISP/WAN setting limitation.

Technical Support Form

We deeply appreciate your purchase of Acrosser products. Please find the "**tech_form.doc**" file in our utility CD. If you have any questions or problems about Acrosser products, please fill in the following information. We will answer your questions in the shortest time possible.

Describe Your Info and Acrosser System Info

- Your Company Name: _____
- Your Contact Info: _____ Phone Number: _____
- Your E-Mail Address: _____
- Your Company Address: _____

  _____
- Acrosser Model Name: _____
- Acrosser Serial Number: _____

Describe System Configuration

- CPU Type: _____
- Memory Size: _____
- Storage Device (e.g. HDD, CF, or SSD): _____
- Additional Peripherals (e.g. Graphic Card): _____
- Operating System & Version (e.g. Windows 7 Embedded): _____
- Special API or Driver: _____

  (If yes, please provide it for debug.)
- Running Applications: _____
- Others: _____

Describe Your Problems or Questions:

Send the above information to one of the following Acrosser contacts:

- Acrosser Local Sales Representative
- Acrosser Authorized Sales Channels
- Acrosser Inquiry --- http://www.acrosser.com/inquiry.html
- Acrosser FAX Number --- 886-2-29992887

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